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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/747,725	12/29/2003	Patricia Chapman Irwin	134756-1	6638
23413	7590	06/14/2006	EXAMINER	
CANTOR COLBURN, LLP 55 GRIFFIN ROAD SOUTH BLOOMFIELD, CT 06002			JACKSON, MONIQUE R	
			ART UNIT	PAPER NUMBER

1773

DATE MAILED: 06/14/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

10/747,725

Applicant(s)

IRWIN ET AL.

Examiner

Monique R. Jackson

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --
Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 28 March 2006.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-11,13,15,16 and 21-32 is/are pending in the application.
- 4a) Of the above claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-11,13,15,16 and 21-32 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
- ☐ Certified copies of the priority documents have been received.
 - ☐ Certified copies of the priority documents have been received in Application No. _____.
 - ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date _____.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

1. The amendment filed 3/28/06 has been entered. Claim 12 has been canceled. Claims 1-11, 13, 15-16 and 21-32 are pending in the application.
2. The text of those sections of Title 35, U.S. Code not included in this action can be found in a prior Office action.

Claim Rejections - 35 USC § 102

3. Claims 1-5, 9-11, 13, 15, 16, 24-28 and 30-32 are rejected under 35 U.S.C. 102(b) or (e) as being anticipated by Takaya et al (US 2002/0132898 or USPN 6,908,960.) Takaya et al teach an electronic component comprising a copper foil and a cured magnetic layer with low dielectric properties formed from a thermosetting composition comprising a polyvinylbenzyl ether compound and magnetic particles wherein the magnetic particles are preferably ferrite particles having a particle size of 0.01 to 100 microns (10nm-100 microns) with preferred ferrite particles being Mn-Mg-Zn, Ni-Zn, or Mn-Zn based systems (reads upon the instantly claimed nanosized filler); and wherein the ratio of the thermosetting resin to the powder is from 100:100 to 100:900 (Col. 8, lines 19-64; Col. 10-Col. 11, line 30; Col. 15, line 4-Col. 16, line 64; Col. 20, lines 30-55; Col. 24, lines 37-67; Col. 25, lines 1-21; Col. 29, line 59-Col. 30, line 4; Col. 31, lines 1-19; Col. 32, line 46-Col. 34, line 28.) Takaya et al also teach that the magnetic particles may have any desired shape including spherical, flat and elliptic (Col. 24, lines 60-64.) Takaya et al further teach that the thermosetting composition may further include other thermosetting resins and silane coupling agents; and that another embodiment may include an insulating layer produced from the thermosetting composition comprising ceramic particles instead of the magnetic particles wherein Takaya et al specifically teach that these particles may include the metal oxides

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as claimed and have a particle size of inorganic fillers having a particle size range from 0.1 to 100 microns (Col. 6; Col. 8; Col. 20; Col. 22, line 41-Col. 24, line 9.) Takaya et al further teach that the curing temperature may range from 20° to 250°C depending upon the absence or presence of a curing agent and the type of the curing agent, wherein 50° to 250°C is sufficient for full curing (Col. 20, lines 51-55.)

Claim Rejections - 35 USC § 103

4. Claims 1-11, 13, 15-16 and 21-32 are rejected under 35 U.S.C. 103(a) as being unpatentable over Igarashi et al. As discussed in the prior office action, Igarashi et al teach an epoxy resin composition used for encapsulating a semiconductor element mounted on a wiring circuit wherein the resin composition provides an encapsulating material with superior electric insulation properties (Abstract; Col. 2, lines 30-34.) The encapsulating material comprises A) an epoxy resin, B) a phenolic resin, C) a curing accelerator, and D) at least of (d1) conductive particles whose surfaces are subjected to coating treatment with an insulating inorganic material or (d2) magnetic particles whose surfaces are subjected to a coating treatment with an insulating inorganic material (Abstract; Col. 2, lines 40-53.) Igarashi et al teach that it is **preferable** for the particles have a maximum particle size of **not larger than 200 microns**, and an average particle size in the range of 0.5-50 microns (Col. 4, lines 36-39) and include various metal powders or magnetic powders including hematite, magnetite, and various ferrites expressed by a general formula MFe_2O_4 or $MO_nFe_2O_3$ wherein M designates a bivalent metal particle including Mn, Co, Ni, Cu, Zn, Ba, Mg, etc. (Col. 4, lines 19-30.) Igarashi et al teach examples utilizing Ni-Zn-based ferrite powder (Examples.) Igarashi et al further teach that the insulating inorganic material used in the surface treatment include silica fine powder or alumina fine powder having

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an average primary particle size of 1-1,000nm, preferably silica fine powder whose average primary particle size is 10-500nm (Col. 4, lines 44-55.) Hence, though Igarashi et al do not specifically teach an “average maximum” particle size of less than about 200nm, the Examiner takes the position that one having ordinary skill in the art at the time of the invention would have been motivated to utilize any particle size less than 200 microns or any particle size close to the 0.5 micron end point of the “preferred” average particle size, wherein “about 200nm” is close enough to the preferred range disclosed by Igarashi et al that it would have been obvious to one skilled in the art at the time of the invention given the reasonable expectation of success.

5. Igarashi et al teach that the amount of component D) is preferably set in a range of 10-90 weight% of the total weight of the resin composition (Col. 5, lines 10-13) and the content of C) is preferably 0.5-10 parts by weight per 100 parts of the phenolic resin (Col. 4, lines 8-11) (*hence overlapping the instantly claimed thermosetting weight percent.*) The composition may further contain a silane coupling agent such as the alkoxysilanes at Col. 6, lines 8-10, silicone compound stress reduction agents such as side-chain ethylene-glycol type dimethylsiloxane (*reads on instant claims 5 and 7*), and various additives (Col. 5, line 61-Col. 6, line 11; Examples.)

Igarashi et al teach that the above composition is formed into an encapsulating layer by low-pressure transfer molding to a thickness in the range of 0.1-5mm, with examples post-hardened at a temperature of 175°C (Col. 7, line 8-Col. 8, line 2; Examples.)

6. Though Igarashi et al teach that various ferrites expressed by a general formula MFe_2O_4 or $MO_nFe_2O_3$ wherein M designates a bivalent metal particle including Mn, Co, Ni, Cu, Zn, Ba, Mg, etc. may be utilized in the coating composition with examples specifically utilizing Ni-Zn-based ferrite powder, Igarashi et al do not specifically teach that the ferrite particles have the

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formula as instantly claimed. However, one having ordinary skill in the art at the time of the invention would have been motivated to utilize a Ni-Zn ferrite powder as taught by Igarashi et al and to determine the optimum amounts of each metal to include in the ferrite powder wherein equal amounts of Ni and Zn would have been obvious to one skilled in the art at the time of the invention. With regards to Claims 6 and 8, though Igarashi et al teach that the thermosetting composition may further comprise the silicone compound as a stress reducing agent, Igarashi et al do not specifically teach the molecular weight of the silicone compound as instantly claimed, however, considering it is well established in the art that molecular weight is a known result-effective variable affecting the mechanical properties of the resulting cured product, one having ordinary skill in the art at the time of the invention would have been motivated to determine the optimum molecular weight to provide the desired stress reducing properties to the composition. With respect to Claims 21-23, though Igarashi et al teach that the encapsulating layer may have a thickness that overlaps the instantly claimed range and provides superior insulation properties, Igarashi et al does not specifically teach the thickness and electric breakdown range as instantly claimed. However, considering the electric breakdown is directly related to the thickness of the insulation layer, one having ordinary skill in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the optimum thickness of the insulation layer to provide the desired electric breakdown based on the intended end use of the insulation layer, wherein Igarashi et al provide a suggestion to utilize thickness values within the instantly claimed range. Lastly, with regards to instant claim 25, though Igarashi et al teach that the insulating layer is provided over the electrical component by a molding process, coating methods as instantly claimed are functionally equivalent methods in the art for providing insulating layers

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on an electrical component and would have been obvious to one skilled in the art at the time of the invention.

7. Claims 21-23 and 29 are rejected under 35 U.S.C. 103(a) as being unpatentable over Takaya et al. The teachings of Takaya et al are discussed above. Though Takaya et al teach that the cured composition have excellent dielectric or insulating properties and may be utilized in the electronic industry, Takaya et al does not specifically teach the layer thickness and electric breakdown range as instantly claimed. However, considering the electric breakdown is directly related to the thickness of the insulation layer, one having ordinary skill in the art at the time of the invention would have been motivated to utilize routine experimentation to determine the optimum thickness of the insulation or dielectric layer to provide the desired electric breakdown based on the intended end use of the layer.

Response to Arguments


8. Applicant's arguments filed 3/28/06 have been considered but are moot in view of the new ground(s) of rejection.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Monique R. Jackson whose telephone number is 571-272-1508. The examiner can normally be reached on Mondays-Thursdays, 8:00AM-4:30PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Carol Chaney can be reached on 571-272-1284. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.



Monique R. Jackson
Primary Examiner
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June 12, 2006